IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re the Application of:	)	Group Art Unit: 1724
	)	
THOMAS, ET AL.	)	Examiner: LAWRENCE JR., FRANK M.
	)	
Serial No.: 10/817,616	)	DECLARATION OF CAMERON MARTIN
	)	UNDER 37 C.F.R. §1.131
Filed: APRIL 2, 2004	)	
	)	
Atty. File No.: 3791-30	)	
	)	
For: "APPARATUS AND PROCESS FOR PREPARING SORBENTS FOR MERCURY CONTROL AT THE POINT OF USE"	)	

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Dear Sir:

I, Cameron Martin, declare as follows:

1. I am an employee of ADA Environmental Solutions, LLC, (ADA ES), the assignee of the above application, LLC, an inventor of the above-referenced patent application, and familiar with the application. This Declaration is being submitted in connection with prosecution activities for the above-referenced patent application.

2. I have been employed as Director of Engineering and then Director of Mercury Control Systems by ADA ES from October, 1996, to the present. During this time, I have been involved in research and development and product development activities in mercury removal from waste gas streams. Accordingly, I am qualified as one of ordinary skill in the art in the field of gas phase mercury removal. I am also a shareholder of ADA ES.

3. Attached as Exhibits "A" and "B" are documents, which upon information and belief were generated before the January 23, 2003, filing date of U.S. Patent 6,818,043 to Chang

et al. The document attached as Exhibit "A" is an email from Michael Durham, another named inventor, to myself and the document attached as Exhibit "B" is entitled "Disclosure of Invention" referencing the subject matter of Exhibit "A". Exhibits "A" and "B" predate the January 23, 2003, filing date of Chang et al.

4. With reference to independent claims 1, 10, and 19, Exhibit "A" describes the use of on-site milling of gas-phase mercury removal sorbents. It further describes my experience with similar systems at power plants injecting sodium for a different purpose. The purpose is improving the effectiveness of dry injection trona and other sodium based chemicals to remove sulfur dioxide from coal fired boiler flue gas. The trona arrives on-site in a granular form and is then stored, fed to a mill, and injected pneumatically into the flue gas.

5. With reference to independent claims 1, 10, and 19, Exhibit "B" provides more detail on the concept of on-site milling of mercury sorbents. An exemplary sorbent identified is activated carbon. Activated carbon is introduced into the gas stream by blowing in a dry form of the carbon, where the carbon reacts with the mercury and finds the mercury to the surfaces of the carbon. Activated carbon is currently manufactured using thermal and mechanical means at centralized locations where coal is processed. Raw (unmilled) activated carbon from such a centralized site is shipped to customer sites through a variety of means including supersacks, truck and rail. At the site of the utility plant, the raw activated carbon is placed into a mill and milled to produce smaller particles. Particle size is adjusted by inertial classifiers that keep recirculating the particles back to the mill until they reach the desired size. The resulting activated carbon particles of the desired size, in a finely divided form, are introduced directly into the flue gas where it would react with and remove mercury. The mercury laden sorbent would then be removed from the gas stream by an electrostatic precipitator or baghouse.

Shipping raw activated carbon can reduce transportation costs because the bulk density of the finished activation product is much less than the bulk density of raw activated carbon. Additional benefits include producing an activated carbon product that meets tighter specifications, making the milled activated carbon product more "active" (the surfaces are newer with on-site processing), and additional ingredients may be introduced into the mill along with the activated carbon to produce an enhanced material.

6. The subject matter of the Disclosure of Invention attached as Exhibit "B" was filed as U.S. Provisional Applicant 60/460,478 on April 2, 2003, ("provisional application") or less than three months after the filing date of Chang et al. The above application claims the benefits of this provisional application.

7. Between the dates of Exhibits "A" and "B" and the filing date of the provisional application, I evaluated the effectiveness of the invention. I evaluated theoretical models for use in this evaluation. The theoretical models showed that, by reducing the particle size of activated carbon sorbents, more surface area and pore volume would be exposed per unit weight of the carbon to adsorb mercury. Furthermore, it had been observed, in other processes, that very finely ground particles had the potential to agglomerate into larger aggregates if pre-ground or milled in a batch process and then stored prior to use in the intended duct injection process. This agglomeration phenomenon partially or entirely offset the benefits of reducing the primary particle size. In addition finely ground particles are more difficult to store and handle in the storage and injection system. To prevent this agglomeration, the particles should be ground or milled dynamically and then directly introduced (injected) into the process stream without any intermediate storage. I began to research dynamic milling processes and equipment by determining what had been used in similar applications, such as sodium and calcium dry

injection processes for SO_2 control. I identified several candidate technologies including jet mills, attritor mills and conventional high efficiency ball mills that had capabilities to grind and classify particles to less than 5 microns in diameter. I requested product technical, performance, and price information for these technologies. From this information I then developed comparisons of capital, operating and maintenance costs along with their capability to grind the particles to the desired size. In conjunction with other work, I visited two jet mill and one ball mill manufacturers and discussed our potential applications with their technical and sales representatives. These activities provided us with the necessary cost and performance information to evaluate this on-line milling technique to improve the performance of activated carbon injection.

8. Upon information and belief, the patent submission was forwarded to patent counsel on April 2, 2002, 2003. Patent counsel filed the provisional patent application the next day or April 3, 2003.

9. The foregoing statements and attached exhibits establish conception and constructive reduction to practice dates before the January 23, 2003, filing date of Chang, et al. and diligence between the dates of each of Exhibits "A" and "B" and the constructive reduction-to-practice date, or the filing date of the provisional application.

10. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that the statements were made with the knowledge that willful false statements and the like, so made, are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the subject application or any patent issuing thereon.

Date: 9/22/2006

By: _____
Cameron Martin